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(21) International Application Number: PCT/AU82/00062 (22) International Filing Date: 22 April 1982 (22.04.82) (31) Priority Application Number: PE 8542 (32) Priority Date: 22 April 1981 (22.04.81) (33) Priority Country: AU (71)(72) Applicants and Inventors: STOCKS, Terrence [AU/AU]; Hidden Valley, Lightning Ridge, N.S.W. 2834 (AU). TROY, Christopher [AU/AU]; Troy's Field, Hidden Valley, Lightning Ridge, N.S.W. 2834 (AU). MCGREGOR, Kenneth, Sidney [AU/AU]; Hidden Valley, Lightning Ridge, N.S.W. 2834 (AU). MALLOUK, Frederick [AU/AU]; 28 Nettleton Drive, Lightning Ridge, N.S.W. 2834 (AU).		(74) Agent: F.B. RICE & CO.; 101 Mort Street, Balmain, N.S.W. 2041 (AU). (81) Designated States: AU, CH (European patent), DE (European patent), FR (European patent), GB (European patent), JP, SE (European patent), SU, US. Published <i>With international search report.</i>
(54) Title: IMPROVEMENTS IN COOKING UTENSILS <div data-bbox="277 1184 1321 1751" data-label="Image"> </div> (57) Abstract <p>A cooking vessel comprises a container (1) having a close fitting lid (2) in which said lid has valve or vent means (6) therein adapted to allow steam and air to be expelled from the cooking vessel such that the interior thereof can be maintained under conditions of a partial vacuum. The valve or vent means can be associated with an audible indicator, such as a whistle (7, 8), to indicate the passage of air or steam therethrough.</p>		

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IMPROVEMENTS IN COOKING UTENSILS

TECHNICAL FIELD

The present invention relates to improvements in cooking utensils. More specifically, the invention relates to pots, boilers, and the like, which comprise means to enable the contents of the pot, boiler, or the like, to be cooked at reduced pressure i.e. under a partial vacuum, and means to indicate whether the contents of the pot, boiler, or the like, are at, or approaching boiling point.

BACKGROUND ART

The advantages of cooking food under pressure, in a pressure cooking vessel, are well known. However, the use of pressure cookers is not always convenient e.g. when it is desired to add further ingredients during the pressure cooking cycle, which necessitates de-pressurising the pressure cooking vessel to enable the lid to be removed. In addition the premature removal of the lid - either intentionally or unintentionally - before complete de-pressurisation has taken place may result in a virtual explosion of the contents of the cooking vessel.

Further, there exists a need to provide pots, saucepans, boilers and the like, with means to indicate whether or not the contents thereof are at or are approaching boiling point. This need is apparent in the case of food preparations which are heat sensitive which should not be allowed to exceed boiling point or to remain at that temperature for extended periods. This need is also apparent in the case where there are a number of pots, or the like, being used on a cooking range at the one time - such as is the case in busy kitchens in hotels, restaurants and the like. In this case there is a need to know which pot or pots are boiling and for how long they have been in this state.

DISCLOSURE OF INVENTION

It is an object of the present invention to provide a

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cooking vessel which allows cooking of the contents thereof under reduced pressure.

It is another object of this invention to provide a means of indicating whether or not the contents of a pot, saucepan, boiler or the like are at boiling point.

It is a further object to provide means of indicating which number of pots etc. of a plurality of such pots have attained or are approaching boiling point, and to further provide means of indicating the length of time which such
10 pots etc. have been in this state.

According to one aspect of the present invention, there is provided a closable cooking vessel having valve or vent means therein adapted to allow steam and air to be expelled therefrom such that the interior of the cooking vessel can be maintained under conditions of partial vacuum.

According to a second aspect of the present invention, there is provided a closable cooking vessel, which comprises means - preferably in the lid or cover thereof - which provide an audible indication that the contents thereof are
20 at, or are approaching, boiling point.

According to another aspect of the present invention, there is provided a plurality, or a set, of cooking vessels (i.e. covered pots, saucepans, boilers or the like), each comprising means which provide an audible indication - with each cooking vessel having its own distinctive audible tone - that the contents thereof are at, or are approaching, boiling point.

According to a further aspect of the present invention, there is provided a covered pot, saucepan, boiler or the like
30 of the type described above, adapted to act as a low-pressure-type pressure cooker, which comprises a pot etc., having means to retain the cover thereof on the said pot against low steam pressure which may build up in the pot but allows the escape of built up steam once a predetermined pressure is attained, in order that said predetermined

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pressure is not exceeded.

Water-boiling devices, such as jugs or kettles, comprising whistle means activated by escaping steam are known. Also known are various type of pressure cookers which comprise audible means - either inherent, built-in, or added - which indicate a release or an escape of steam from within the pressure cooker. However, conventional cooking utensils, which may be termed pots, saucepans, boilers or the like which comprise audible indicators of steam release, are not
10 available.

In accordance with the present invention, it is preferable that a steam whistle-type indicator be incorporated in the lid or cover of the pot. In the case of such pots having a lid or cover with a central knob or handle, it is preferred that the knob or handle be adapted to include the whistle-type indicator therein.

In the case of a set or a plurality of saucepans, it is preferable that each saucepan be provided with a whistle-type indicator having a different tone (or a whistle of which the
20 tone or pitch may be varied) to other saucepans in the set. This would enable a user of such a set or plurality of saucepans to determine which of said set or plurality of saucepans are approaching or have attained boiling point. This enables the user to effectively time the cooking of the contents of each saucepan and to make proper forward planning and organisation in a busy kitchen schedule, and to prevent the boiling over of the contents of one or more of the pots.

In one embodiment of the invention the lid of the cooking vessel is provided with a rotatable central knob with
30 a plurality of whistle cavities therein about the periphery of said knob, wherein the knob is rotatable to selectively align one of said plurality of whistle cavities with a venting orifice provided in lid of the cooking vessel. Steam emitted from the orifice is forced through and out of the aligned whistle cavity to produce a whistle sound. Each of

the whistle cavities would be designed such as to give a distinct whistle sound. Thus a set of cooking vessels could be provided with lids having the above described rotatable multi-whistle knob, with a different whistle being selected (by rotation of the knob) for each cooking vessel - for identification purposes.

In the case of low-pressure-type cooking utensils in accordance with the present invention, the cover or lid of the pot or saucepan may, if required, be retained on the pot
10 or saucepan by means of spring-loaded or spring-biased retaining means which allow escape of steam and built up pressure at a predetermined pressure. The whistle-type indicator built into the lid or cover of the cooking utensil is preferably also adapted to allow the escape of steam by acting as a steam pressure by-pass valve.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be further described with reference to the embodiments thereof as illustrated in the drawings. In the drawings:

20 Fig. 1 is a sectional side-elevational view of a cooking vessel according to the present invention, having a rotatable, multi-whistle knob on the lid thereof;

Fig. 2 is a perspective view of the lid of the cooking vessel of Fig. 1; and

Fig. 3 is a sectional side-elevational view of another lid of a cooking vessel, according to the invention, wherein a fixed whistle is incorporated on the inside surface of the lid.

BEST MODE OF CARRYING OUT THE INVENTION

30 Referring to Figs. 1 and 2, the cooking vessel illustrated comprises a container 1 having a lid 2 adapted to seal the container. The lid has a central knob 3 which is rotatable in the directions shown by arrows (Fig. 2). The rotatable knob 3 comprises four radially extending arms 4, 5, 11 and 12, each identified by a numeral thereof ("1", "4",

"3" and "2", respectively). Each arm houses a whistle chamber (see 7 and 9 in Fig. 1) which may be selectively aligned with a steam venting orifice 6 in the lid. Steam entering a whistle chamber via orifice 6 and exiting by an orifice in each arm (orifices 8 and 10 in Fig. 1; orifices 8 and 13 in Fig. 2) creates a whistle tone, the pitch of which is determined by the configuration of the whistle chamber the steam venting orifice and the exiting orifice in each case. Preferably, the whistle in each of the radial arms is adapted
10 to have a characteristic pitch which enables the numbered radial arm (i.e. "1", "2", "3" or "4") aligned with the steam venting orifice to be readily identified. With four separate pots being heated simultaneously on the stove, it is possible to select a whistle of different pitch for each pot, thus enabling easy identification of the time when the contents of each pot begins to boil. This is useful in a busy kitchen, such as a commercial kitchen or restaurant wherein it is required to monitor the cooking of a plurality of cooking vessels.

20 Fig. 3 illustrates another embodiment of the invention wherein a lid 14 of a cooking vessel has a central knob 15 and a permanent whistle chamber 16 affixed to the underside of the lid where steam enters the steam venting orifice 17 and is forced into the whistle cavity or chamber before expulsion through the external orifice 18 to produce a shrill whistling sound. If required, the external or exciting orifice and/or the steam venting orifice may be provided with a one-way flap valve to ensure that air cannot enter the cooking vessel, thus maintaining the conditions of partial
30 vacuum within the cooking vessel.

The cooking of the contents of a cooking vessel according to the invention takes place under a partial vacuum due to the continuous escape or expulsion of steam and entrained air. That the inner space of the cooking vessel is under reduced pressure (or partial vacuum) can be readily

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demonstrated by the initial slight resistance to removal of the lid of the cooking vessel. However, the lid can be removed for inspection purposes or for addition of further ingredients (c.f. a conventional pressure cooker which must be slowly de-pressurised before opening).

As the contents of the pot are under reduced pressure, the boiling point of liquids is reduced. Cooking times are also significantly reduced, with consequential savings in both energy and time (e.g. labor). Examples of the reduction in cooking times are outlined below:-

Steaming or Braising Meats

	<u>New Method</u>	<u>Conventional Method</u>
Beef	30-40 mins.	2-3 hours
Lamb	30-40 mins.	2-3 hours
Pork	30-40 mins.	1.5 hours
Chicken	25-35 mins.	
Steam Pudding	40-50 mins.	2.5-3.5 hours
Potatoes	10 mins.	20-30 mins.
Brown Rice	15 mins.	40 mins.

Food is cooked faster, saving up to 70% of the normal cooking time. Food cooked in this way maintains a firmer texture and has more nutrition and flavour, due to the shorter cooking time. There is also a resultant saving in the fuel used for cooking. In addition, there is less chance of the contents of the cooking vessel of the present invention boiling over, thus there is also a saving in time devoted to cleaning of the cooking vessel and the surface of the stove or other cooking appliance.

Although the invention has been described above with reference to examples and preferred embodiments, it will be appreciated that numerous variations to and modifications for specifically described features may be made without departing from the spirit or scope of the invention as broadly described.

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Claims:-

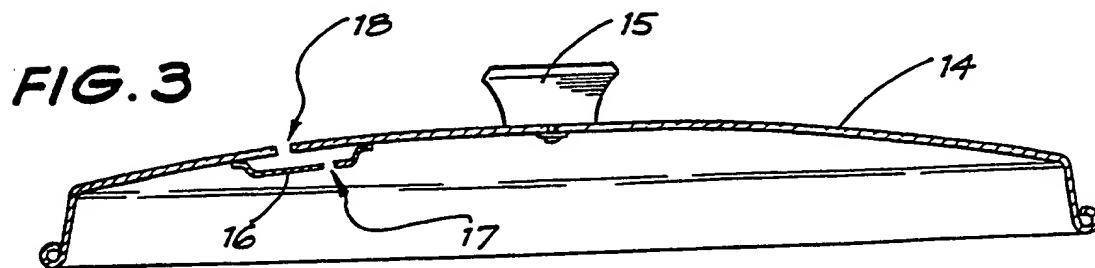
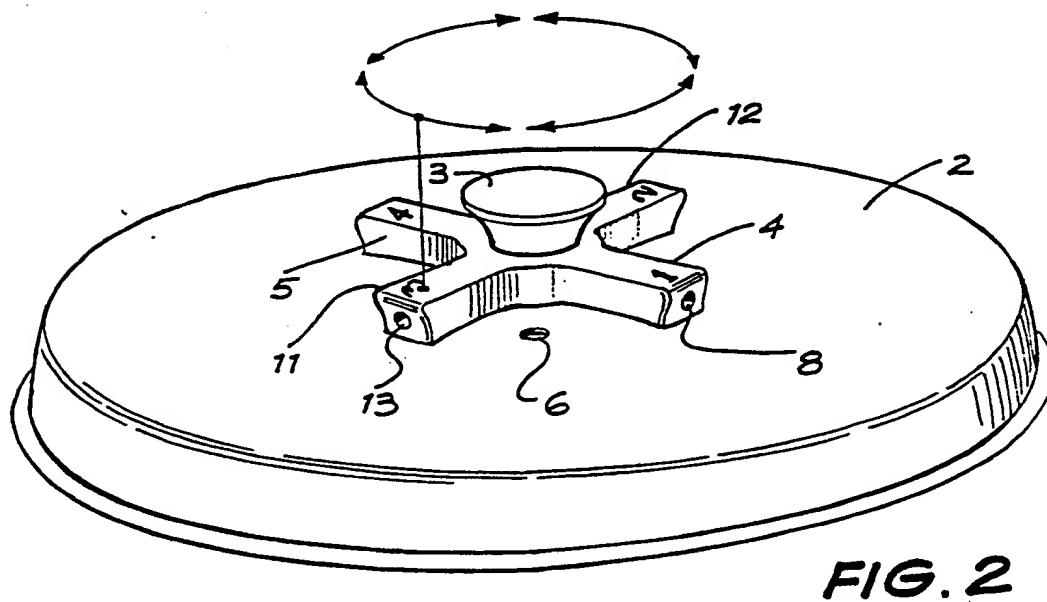
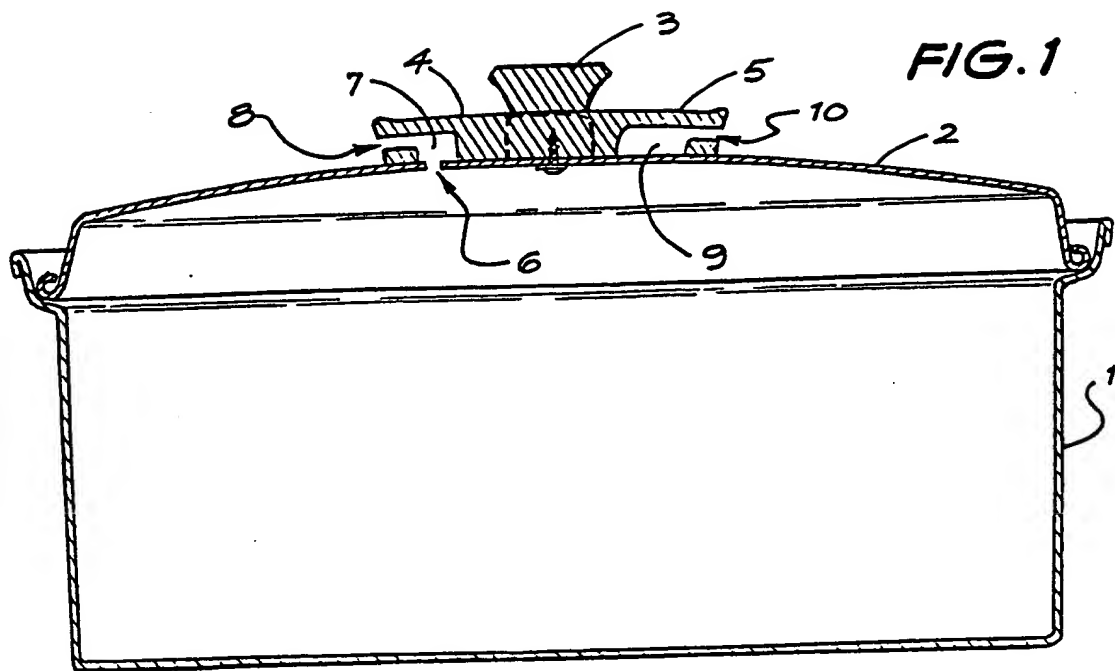
1. A closable cooking vessel comprising a receptacle with a close-fitting lid, said lid having a valve or vent means therein adapted to allow steam and air to be expelled therefrom such that the interior of the cooking vessel can be maintained under conditions of a partial vacuum.
2. A closable cooking vessel comprising a receptacle with a close-fitting lid, said lid having a valve or vent means therein adapted to allow steam and air to be expelled therefrom such that the interior of the cooking vessel can be maintained under conditions of a partial vacuum, said valve or vent means comprising an audible indicator of the passage of air or steam therethrough.
3. A closable cooking vessel according to claim 2 wherein said audible indicator comprises a whistle in which air or steam is forced into a cavity therein or against a thin edge to produce a whistling sound.
4. A set of closable cooking vessels of the type as defined in claim 3 wherein each one of said set of cooking vessels comprises a whistle adapted to produce a whistle tone different to the whistle tone produced by the whistle of any of the remainder of said set of cooking vessels.
5. A closable cooking vessel according to claim 2 wherein said audible indicator comprises rotatable means having a plurality of whistles therein with each whistle adapted to be selectively aligned with said valve or vent means whereby air or steam is forced through the aligned whistle to produce a whistling sound.
6. A closable cooking vessel according to claim 5 wherein each of said plurality of whistles is adapted to produce a whistle tone different to the whistle tone produced by any of the remainder of said plurality of whistles.
7. A closable cooking vessel according to any one of the preceding claims wherein said valve or vent means comprises a flap valve adapted to prevent the re-entry of air to said

cooking vessel.

8. A closable cooking vessel according to any one of claims 3 to 7 wherein said whistle comprises a flap valve on any outlet thereof, said flap valve being adapted to prevent the re-entry of air to said cooking vessel.

9. A closable cooking vessel substantially as hereinbefore described.

10. A closable cooking vessel substantially as hereinbefore described and illustrated with reference to the drawings.



INTERNATIONAL SEARCH REPORT

International Application No PCT/AU82/00062

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ³		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int. Cl ³ A47J 27/08, 27/212, 36/06		
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁴		
Classification System	Classification Symbols	
IPC	A47J 27/08, 27/212, 36/06	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵		
AU:IPC as above.		
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴		
Category ⁶	Citation of Document, ¹⁶ with Indication, where appropriate, of the relevant passages ¹⁷	Relevant to Claim No. ¹⁸
X	US,A, 1422935 (DEAN) 18 July 1922 (18.07.22)	(1)
X	US,A, 1509975 (MORGAN) 30 September 1924 (30.09.24)	(1)
X	US,A, 1928298 (MATTER) 26 September 1933 (26.09.33)	(1)
X	US,A, 2134759 (HOWLETT) 1 November 1938 (01.11.38)	(1)
X	US,A, 2187762 (UHLRIG) 23 January 1940 (23.01.40)	(1)
X	US,A, 2415613 (SULAK) 11 February 1947 (11.02.47)	(1)
X	US,A, 3047186 (SERIO) 31 July 1962 (31.07.62)	(1)
X	US,A, 3362566 (HANANIA) 9 January 1968 (09.01.68)	(1)
X	UK.A. 486800 (BAKER) 10 June 1938 (10.06.38)	(1-3)
X	UK,A, 473640 (BEST) 18 October 1937 (18.10.37)	(1-3)
X	UK,A, 139983 (KINSMAN) 18 March 1920 (18.03.20)	(1)
X	CH,A, 309873 (BONDANINI) 1 December 1955 (01.12.55)	(1)
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>[*] Special categories of cited documents: ¹⁵ (continued)</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="width: 50%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"A" document member of the same patent family</p> </div> </div>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search ²		Date of Mailing of this International Search Report ³
14 July 1982 (14.07.82)		22 July 1982 (22.07.82)
International Searching Authority ¹		Signature of Authorized Officer ²⁰
AUSTRALIAN PATENT OFFICE		R.E.W. MAY <i>R. E. W. May</i>

FURTHER INFORMATION CONTINUED FROM THE SECOND SHEET

X	AU,B, 20196/77 (500787) (AUST. GENERAL ELECTRIC) 8 March 1979 (08.03.79)	(1-3)
X	AU,A, 49668/79 (DOYLE) 27 March 1980 (27.03.80)	(1)
X	AU,A 56666/80 (JORDAN & SORELL) 25 September 1980 25.09.80)	(1)

V. ☐ OBSERVATIONS WHERE CERTAIN CLAIMS WERE FOUND UNSEARCHABLE ¹⁰

This International search report has not been established in respect of certain claims under Article 17(2) (a) for the following reasons:

1. ☐ Claim numbers _____, because they relate to subject matter ¹² not required to be searched by this Authority, namely:

2. ☐ Claim numbers _____, because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out ¹³, specifically:

VI. ☐ OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING ¹¹

This International Searching Authority found multiple inventions in this international application as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims of the international application.

2. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims of the international application for which fees were paid, specifically claims:

3. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claim numbers:

4. ☐ As all searchable claims could be searched without effort justifying an additional fee, the International Searching Authority did not invite payment of any additional fee.

Remark on Protest

☐ The additional search fees were accompanied by applicant's protest.

☐ No protest accompanied the payment of additional search fees.